

We claim:

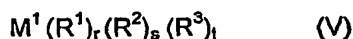
1. A process for preparing a catalyst solid for olefin polymerization by bringing

- 5 A) at least one organic transition metal compound,
B) at least one organometallic compound of formula (V)

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where

M^1 is an alkali metal, an alkaline earth metal or a metal of group 13 of the Periodic Table,

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R^1 is hydrogen, C_1 - C_{10} -alkyl, C_6 - C_{15} -aryl, halo- C_1 - C_{10} -alkyl, halo- C_6 - C_{15} -aryl, C_7 - C_{40} -arylalkyl, C_7 - C_{40} -alkylaryl, C_1 - C_{10} -alkoxy or halo- C_7 - C_{40} -alkylaryl, halo- C_7 - C_{40} -arylalkyl or halo- C_1 - C_{10} -alkoxy,

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R^2 and R^3 are each hydrogen, halogen, C_1 - C_{10} -alkyl, C_6 - C_{15} -aryl, halo- C_1 - C_{10} -alkyl, halo- C_6 - C_{15} -aryl, C_7 - C_{40} -arylalkyl, C_7 - C_{40} -alkylaryl, C_1 - C_{10} -alkoxy or halo- C_7 - C_{40} -alkylaryl, halo- C_7 - C_{40} -arylalkyl or halo- C_1 - C_{10} -alkoxy,

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r is an integer from 1 to 3

and

s and t are integers from 0 to 2, where the sum $r+s+t$ corresponds to the valence of M^1 ,

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- C) at least one organic compound having at least one functional group containing active hydrogen, wherein the functional group is selected from the groups consisting of hydroxyl groups, primary and secondary amino groups, mercapto groups, silanol groups, carboxyl groups, amido groups and imido groups,

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- D) at least one Lewis base and

- E) at least one support,

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into contact with one another, wherein the components are combined in any order without any isolation of an intermediate.

2. A process for preparing a catalyst solid for olefin polymerization as claimed in claim 1, wherein the component B) used is a mixture of at least two different organometallic compounds.
3. A process for preparing a catalyst solid for olefin polymerization as claimed in claim 2, wherein the component B) used is a mixture of at least one aluminum-containing organometallic compound and at least one boron-containing organometallic compound.
4. A process for preparing a catalyst solid for olefin polymerization as claimed in claim 2 or 3, wherein the component B) comprises at least two different aluminum-containing organometallic compounds.
5. A process for preparing a catalyst solid for olefin polymerization as claimed in any of claims 1 to 4, wherein the functional groups containing active hydrogen of the component C) are hydroxyl groups.
6. A process for preparing a catalyst solid for olefin polymerization as claimed in claim 5, wherein the component C is a compound of formula (VI)



where

A is an atom of group 13, 14 or 15 of the Periodic Table or a group comprising from 2 to 20 carbon atoms,

R^4 are identical or different and are each, independently of one another, hydrogen, halogen, C_1-C_{20} -alkyl, C_1-C_{20} -haloalkyl, C_1-C_{10} -alkoxy, C_6-C_{20} -aryl, C_6-C_{20} -haloaryl, C_6-C_{20} -aryloxy, C_7-C_{40} -arylalkyl, C_7-C_{40} -haloarylalkyl, C_7-C_{40} -alkylaryl or C_7-C_{40} -haloalkylaryl or R^4 is an $OSiR_3^5$ group, where

R^5 are identical or different and are each hydrogen, halogen, C_1-C_{20} -alkyl, C_1-C_{20} -haloalkyl, C_1-C_{10} -alkoxy, C_6-C_{20} -aryl, C_6-C_{20} -haloaryl, C_6-C_{20} -aryloxy, C_7-C_{40} -arylalkyl, C_7-C_{40} -haloarylalkyl, C_7-C_{40} -alkylaryl or C_7-C_{40} -haloalkylaryl,

y is at least 1 and

x is an integer from 0 to 41.

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